Gulf of Mexico offshore ecosystem services: stakeholder valuation workshops

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Introduction

Preserving the ability of the environment to provide valued ecosystem services is one of the objectives of environmental management. The integration of ecosystem services into the management of deep-water marine systems is of interest; however, one of the limitations has been the absence of organized forums where stakeholders can communicate their values and expectations.

To start the dialogue with stakeholders, the Harte Research Institute with the help of ExxonMobil held two stakeholder workshops: one on September 29th, 2013 in Houston, Texas and one on November 21st, 2013 in Tampa, Florida.

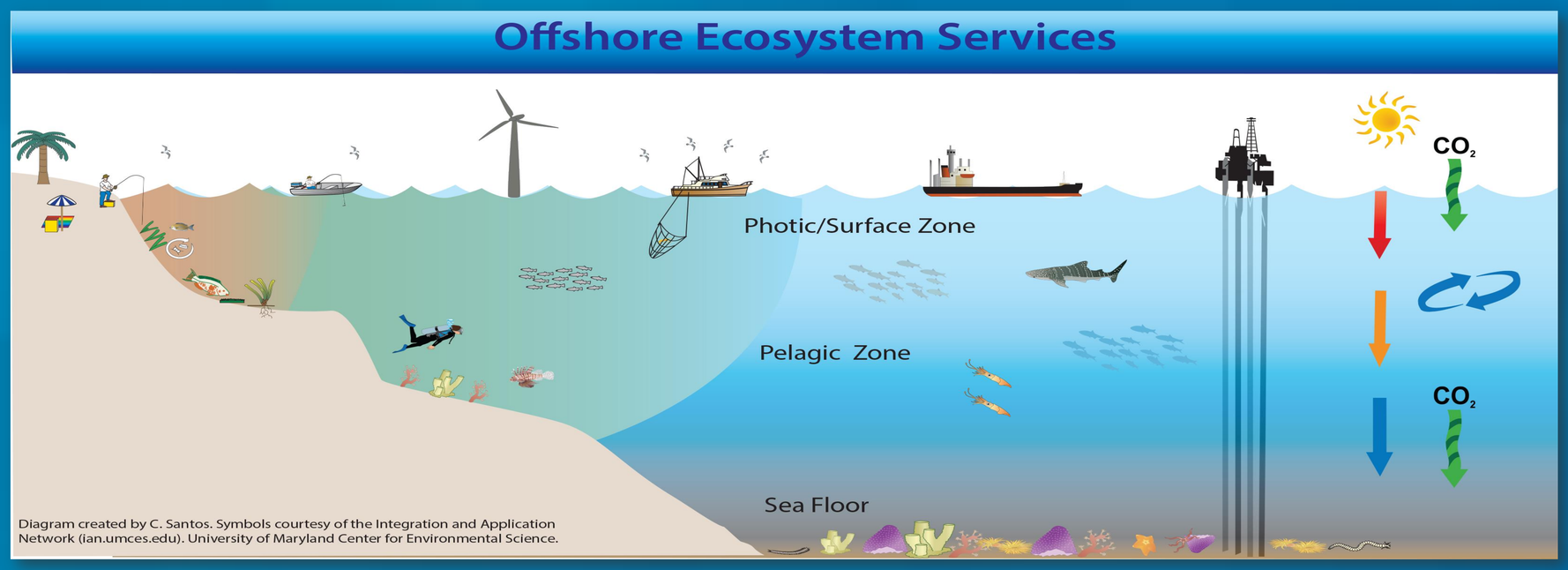

Figure 1: Offshore ecosystem services provided by different water column zones

Offshore Ecosystem Services

Because of the varying depth, the photic zone (0-200 m), pelagic zone (deeper than 200 m), and sea floor (on or near the ocean floor) provide different ecosystem services (Fig. 1). Some services are provided by all three zones (e.g. food, nutrient regulation, science and education, etc...), while others are provided exclusively by one zone (e.g. transportation).

These offshore ecosystem services were the focus of the stakeholder valuation workshops.

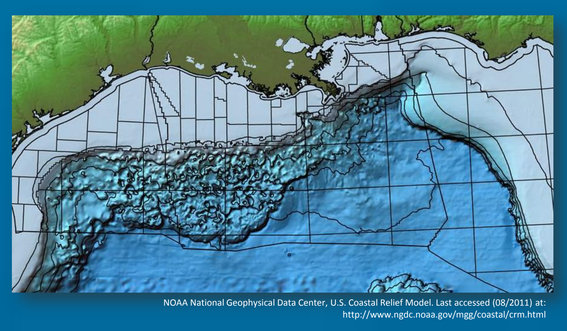

Figure 2: Northwestern Gulf of Mexico

Stakeholder valuation workshops

Workshops objectives

- Engage participants in a discussion on ecosystem services provided by the deep-water Gulf.
- Identify offshore ecosystem services that are occurring or anticipated to occur in the deepwater Gulf.
- Quantify, in non-monetary terms, the relative importance of the identified offshore ecosystem services (Relative Valuation of Multiple Ecosystem Services Index/**RESVI approach**) [1].

Workshops participants

Stakeholders that participated in the workshops included representatives from commercial and recreational fishing, oil and gas, diving, aquaculture, wind energy, pipeline industry, Federal agencies, and non-government organizations.

Relative Valuation Approach

Stakeholders were asked to rank ecosystem services using the RESVI approach [1]. This entailed allocating an hypothetical $1 to the services stakeholders valued the most. Participants could either assign their $1 to one service or divide it among as many services as desired. Below are the results from the valuation exercises.

Workshops results

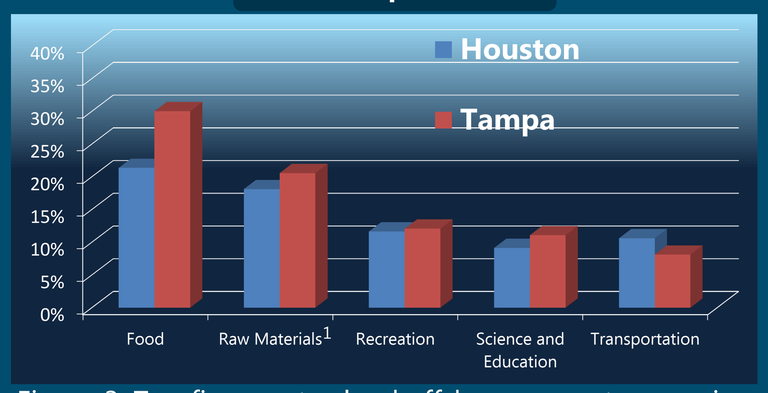

Figure 3: Top five most valued offshore ecosystem services

Note: Percentages reflect the percentage of hypothetical funds assigned to an ecosystem service for each workshop. Participants in Houston ranked 11 ecosystem services compared to 7 in Tampa.

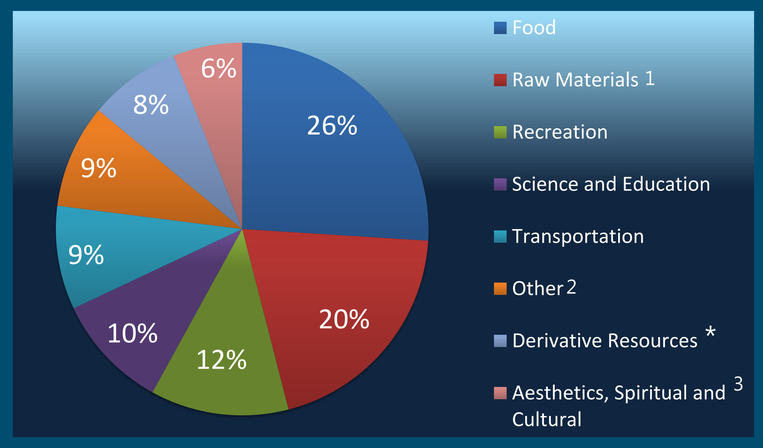

Figure 4: Offshore ecosystem services relative valuation: combined results.

* Derivative resources include genetic and medicinal resources

[1] Including hydrocarbons

[2] "Other" includes waste regulation, nutrient regulation, and existence, which were only ranked in Houston and represent 4%, 3%, and 2% of all votes, respectively.

[3] For comparison purposes, the service "Aesthetic, Spiritual and Cultural" is a combination of two services valued in Houston ("aesthetics" and "spiritual and historic") and one service valued in Tampa ("aesthetics and cultural").

Conclusions

1. Stakeholders took a holistic approach, i.e., recognized the value of ranking multiple ecosystem services.
2. Both workshops yielded similar results, with food, raw materials, and recreation being among the top ranked ecosystem services.
3. Participants highlighted the difference between direct (provisioning and cultural) and indirect (regulating and supporting) services, and;
4. Workshop participants decided that only those services should be ranked which are directly used, consumed or enjoyed by stakeholders (i.e., direct services).
5. Stakeholders expressed that the role of the indirect services should be considered when designing monitoring and mitigation measures to support the sustainability of the direct services.

Future steps

The stakeholder valuation workshops were a first step toward testing the RESVI approach for marine environments. Future studies are recommended to fully develop the viability of this methodology. The results obtained during the workshops may be useful in future discussions of scientific and socio-economic indicators to monitor and maintain ecosystem services health in alignment with stakeholder needs.

Acknowledgements

We thank all stakeholders who participated in the workshops for their time and valuable input.

Disclaimer

The views and opinions expressed in this poster reflect those of the participant groups in these workshops and do not necessarily represent those of the individual companies participating.

References

[1] Jordan, S. J., S.E. Hayes, D. Yoskowitz, L.M Smith, J.K Summers, M. Russell, and W.H. Benson (2010) Accounting for Natural Resources and Environmental Sustainability: Linking Ecosystem Services to Human Well-Being. *Environmental Science & Technology*, *44*(5), 1530–1536. doi:10.1021/es902597u

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